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(54) Arrangement for network access via the telecommunication network by remote-controlled filter

(57) The invention relates to an arrangement to check/control access to IP-networks via the telecommunication network. A personal computer is connected via the telecommunication network to an interface pool which constitutes interface between the telecommunication network and the IP-network. According to the invention there is a remote-controlled filter which can be controlled to allow access to the IP-network. An access check/control server checks the authorization of the user of the personal computer and controls the remote-controlled filter depending on the authorization check. The remote-controlled filter initially only allows access to the access check/control server. The access check/control server further can attend to debiting of the user of the personal computer, and check different blocking functions for the access to the IP-network.

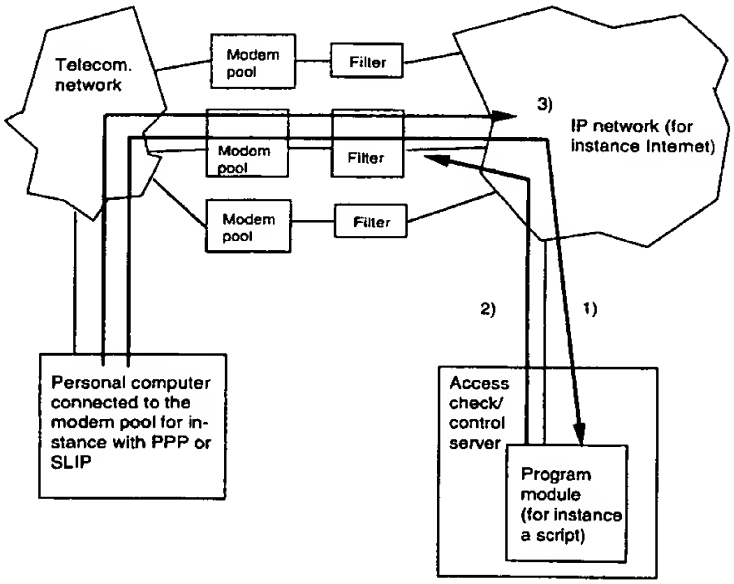

Figure 1

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Description

TECHNICAL FIELD

The present invention relates to an arrangement for network access, especially access to TCP/IP-networks, for instance Internet. The access is controlled by a filter which can be remote-controlled by a special server which checks the user's authorization and controls the access to the IP-network. The special access check/control server allows that the authorization check/control is moved from the interface between the telecommunication network and the IP-network, which makes possible more efficiency and extended functionality.

PRIOR ART

In the systems of today a user's access authorization is checked and debiting for modem pools is attended to by a terminal server which is arranged at or in the modem pool. Each modem pool consequently has a server of its own which checks the access. This means that the modem pools are unnecessarily burdened with technology and costs.

According to the present invention a separate access check/control server is provided which can be located in just any place in the system. This means a more effective utilization and also makes possible extended functionality in the server, which will be explained in more details below.

SUMMARY OF THE INVENTION

Consequently the present invention provides an arrangement to check/control access to IP-networks via the telecommunication networks. The arrangement includes a personal computer connected via the telecommunication network to an interface pool which constitutes the interface between the telecommunication network and the IP-network.

According to the invention, the arrangement includes a remote-controlled filter which can be controlled to allow access to the IP-network, and an access check/control server which can check the authorization of the user of the personal computer, and control the remote-controlled filter depending on the authorization check.

Preferably the normal state of the filter is only to allow access to the access check/control server. The access check/control server also can attend to debiting and different blocking functions in accordance with preferred embodiments of the invention.

The invention is defined in details in enclosed patent claims.

BRIEF DESCRIPTION OF THE DRAWING

The invention will be described in details below with references to the drawing, where the only drawing is a combined bloch diagram and flow chart over a preferred embodiment of the present invention.

1) The filter only allows access to the access check/control server.
2) Order to open to full Internet-access after check.
3) The filter is open to full Internet-access for the IP-number of the calling computer.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention consequently relates to an arrangement for access check/control by means of a server connected in just any place in a TCP/IP-network, for instance Internet. The arrangement makes possible that the debiting can be managed by the server. The invention also makes possible advertisement financing of the access, i.e. that one does not get access to the network before one has studied an advertisement message.

In the figure is shown how a user's personal computer via the telecommunication network and a modem pool and filter is connected to an IP-network. An access check/control server checks the authorization of the user, and controls a remote-controlled filter to control the access. The arrows 1, 2 and 3 describe the steps to open the access to the IP-network.

A user connects himself/herself via the telecommunication network towards a modem pool or interface pool. With interface pool is here meant any form of equipment which allows a user to connect himself/herself from the telecommunication network to the TCP/IP-network. (Transmission Control Protocol/Internet Protocol is an international standard). In the simplest case the interface pool consists of a number of modems connected to a terminal server. The functionality can be gathered in one and the same equipment. Further, it need not be modems; it also can be ATM- or ISDN-adapters or - cards. The protocol which is used for the communication is typically Point-to-Point Protocol (PPP) or Serial Line Internet Protocol (SLIP). The user need either not log in to the modem pool, or is the logging in identity and password the same for all users. The user is by the modem pool allocated (dynamically allocated) an IP-number, i.e. an IP-address.

A filter (a router connected to a computer or a firewall) is connected between the modem pool and the IP-network. This filter allows the calling user initially access only to the server where the access check takes place. This can for instance be a World Wide Web-server. This is the reason for that no special user identification is necessary in the modem pool.

After authorization check of the user and possibly debiting, a program module is activated in the server. This program module now transmits a (suitably encrypted) message to the filter about that it shall open for just this user's IP-address, so that the user gets access to a

number of servers (for instance all servers) on the IP-network. The filter stays in open position until the user has disconnected. Then a message is transmitted from the modem pool to the filter about that the user's IP-number shall be blocked, i.e that access only shall be allowed to the access check/control server again. Alternatively this message can be transmitted next time a user who has connected himself/herself has been allocated the same IP-number.

Instead of authorization check and debiting being made in the access check/control server, or as complement to this, the IP-network access can be advertisement financed. This is arranged by the user having to study an advertisement message. When this has been done, the program module which opens for the IP-network access is activated. To ensure that the user has studied the advertisement message, a number of questions can be made in connection to it. Only after the questions have been satisfactorily answered, is opened for the network access.

The above described system can be used to block certain servers in Internet or other IP-networks. This is made by messages being transmitted to all filters about which addresses that shall be blocked. The filters after that block for all these addresses even after they have openend for full access to one user.

The above described system also can be used to give certain users restricted access to the IP-network. By arranging special profiles (lists) over which IP-network addresses that are allowed respective not allowed, the filter can be set selectively for a certain user when he/she opens for IP-network access in the access check/control server. The profiles can be in the access check/control server and be transmitted to the filter via the opening. Alternatively, profiles can be predefined in the filter and the only thing transmitted from the access check/control server is the message about which profile that shall be used.

This functionality can for instance be utilized to prevent that certain users get access to certain pornography-related servers.

Consequently the arrangement according to the present invention implies that the access check/control is moved out from the interface pool to just any place in the system. This means that the number of access check/control servers which are required can be reduced, and each access check/control server can by that be made more effective and offer extended functionality. The hardware and the software which is required to realize the invention is easily realized by an expert in the field. The invention is only restricted by the following patent claims.

Claims

1. Arrangement to check/control access to IP-network via telecommunication network, including at least one personal computer connected via the telecommunication network to an interface pool which constitutes interface between the telecommunication network and the IP-network, **characterized** in at least one remote-controlled filter which can be controlled to allow access to the IP-network, and an access check/control server which can check the authorization of the user of the personal computer and control the remote-controlled filter depending on the authorization check.

2. Arrangement according to patent claim 1, **characterized** in that the remote-controlled filter before the authorization check only allows access to the access check/control server.

3. Arrangement according to patent claim 2, **characterized** in that the normal state of the remote-controlled filter after finished access for the user of the personal computer only is to allow access to the access check/control server.

4. Arrangement according to any of the previous claims, **characterized** in that the access check/control server attends to debiting of the user of the personal computer.

5. Arrangement according to any of the previous claims, **characterized** in that the interface pool is a modem pool.

6. Arrangement according to any of the previous patent claims, **characterized** in that the access check/control server as complement or alternative to the authorization check and the debiting, is arranged to attend to transmission of a preferably interactive advertisement message to the user of the personal computer.

7. Arrangement according to any of the previous patent claims, **characterized** in that the access check/control server blocks access to certain IP-network addresses.

8. Arrangement according to any of the previous patent claims, **characterized** in that the access check/control server, depending on for the user of the personal computer individual authorization profiles, blocks access to certain IP-network addresses.

9. Arrangement according to patent claim 8, **characterized** in that individual authorization profiles are stored in the access check/control server.

10. Arrangement according to patent claim 8, **characterized** in that predefined authorization profiles are stored in the remote-controlled filter, at which the authorization check can imply that an authorization profile is tied to the user of the personal computer.

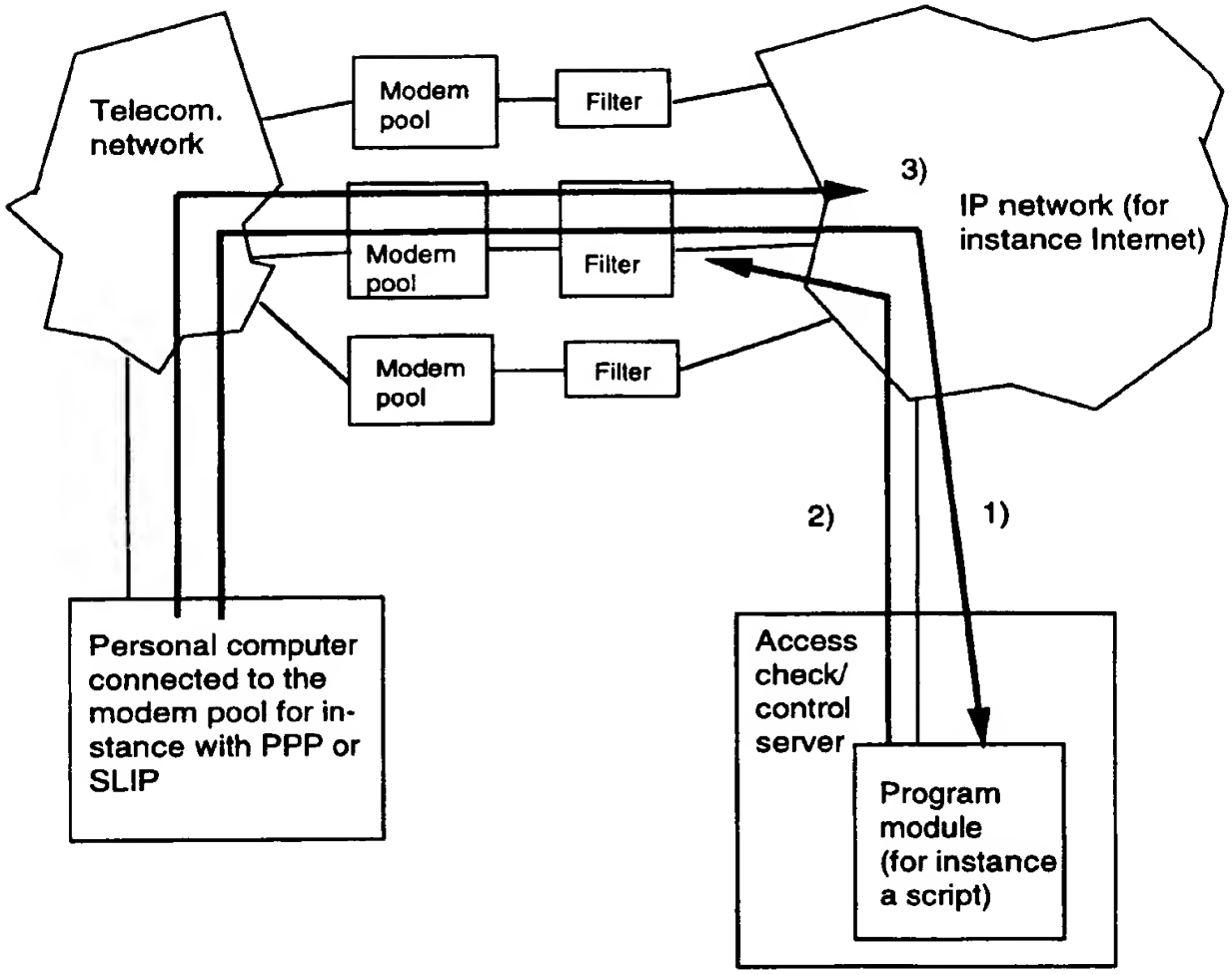

Figure 1

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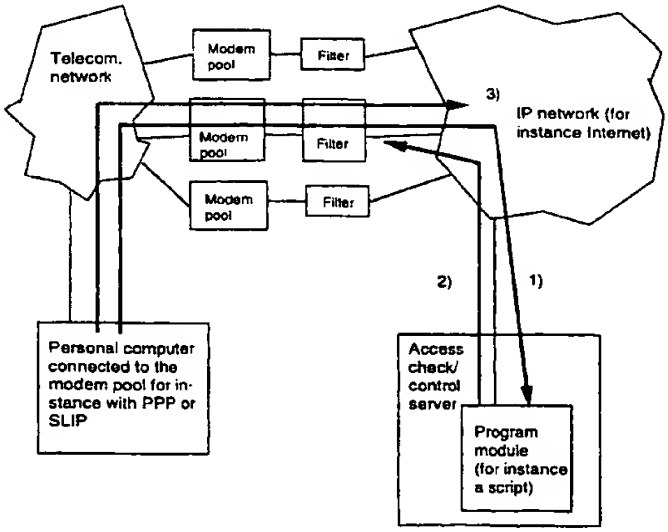

Figure 1

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EUROPEAN SEARCH REPORT

Application Number
EP 96 85 0139

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	METH C: "HARDWARE SOLUTIONS IMPROVE DATA SECURITY" 15 May 1995 , ELECTRONIC DESIGN, VOL. 43, NR. 10, PAGE(S) 53/54, 56 XP000517476 * figure 1 * * page 1, line 31 - line 35 * * page 2, column 1, line 17 - column 2, line 1 * * page 2, column 2, line 21 - line 26 * ---	1,7-10	H04L29/06
X	EP 0 658 837 A (CHECKPOINT SOFTWARE TECHN LTD) 21 June 1995 * abstract * * figure 2 * * page 2, line 17 - line 19 * * page 2, line 36 - line 44 * * page 3, line 26 - line 35 * * page 4, line 1 - line 10 * ---	7-10	
X	FR 2 631 764 A (QUALICOMM ;KRONOS (FR)) 24 November 1989 * abstract * * figure 1 * * page 1, line 3 - line 5 * * page 1, line 13 - line 23 * * page 2, line 11 - line 13 * * page 2, line 31 - line 33 * * page 9, line 2 - line 4 * ---	1,3,5, 7-9	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H04L
A	BELLOVIN S M ET AL: "NETWORK FIREWALLS" 1 September 1994 , IEEE COMMUNICATIONS MAGAZINE, VOL. 32, NR. 9, PAGE(S) 50 - 57 XP000476555 * page 1, column 1, line 34 - line 37 * * page 2, column 3, line 28 - line 35 * * page 2, column 4, line 56 - line 58 * * page 3, column 5, line 5 - line 7 * * page 3, column 6, line 1 - line 12 * --- -/--		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	4 June 1997	Adkhis, F

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EUROPEAN SEARCH REPORT

Application Number
EP 96 85 0139

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP 0 645 688 A (NEDERLAND PTT) 29 March 1995 * abstract * * figure 1 * * column 2, line 7 - line 20 * * column 2, line 48 - line 57 * * column 3, line 28 - line 31 * ---		
A	US 5 245 656 A (LOEB SHOSHANA K ET AL) 14 September 1993 * abstract * * figure 1 * * column 1, line 6 - line 11 * * column 1, line 33 - line 46 * ---		
P,X	WO 96 05549 A (SHIVA CORP) 22 February 1996 * abstract * * figure 1 * * page 1, line 6 - line 9 * * page 2, line 8 - line 13 * * page 3, line 1 - line 15 * * page 3, line 29 - line 31 * * page 8, line 25 - line 28 * -----	1-3,7-10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)

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THE HAGUE	4 June 1997	Adkhis, F

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A : technological background
O : non-written disclosure
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